

LOUISIANA conservationist

MAY/JUNE 1974



Robert Sloan

...comments

What has once been settled by a precedent will not be unsettled overnight, for certainty and uniformity are gains not likely to be sacrificed.

—Benjamin Nathan Cardozo



J. Burton Angelle, Director

There is little doubt in my mind that many people firmly believe that as citizens we are becoming over-regulated in many fields of our activities—ranging from our business and farm affairs to our personal activities, which even include recreation. It follows that with the many-faceted regulations our taxes become higher and higher, and those branches of government, local, state and federal, become larger and larger.

In many cases, those constantly broadening regulations are accepted by the people as necessary because a great number of what might rightfully be called regulations provide the many services that we want. Some that are often referred to as nuisances, when studied in detail, are actually well formulated and tend to serve the best interests of those involved.

This is true of the provisions of the Federal Boat Safety Act of 1971 which are mandatory under the Federal Act and have slowly but progressively been implemented during the past two years.

I do not think it is necessary to point out that Louisiana is a major boating state. In the interior of Louisiana we find a vast lacelike network of lakes, reservoirs, rivers, streams and bayous. Along the coast, in our estuarine waters, there are countless bays, bayous, oil company canals and lakes. Excellent fishing in offshore waters attracts a growing number of boaters each year. Boat and motor sales in the state have increased steadily through the years. This general increase in boating activities also includes sailing, water skiing and hunting.

The Federal Boat Safety Act of 1971 is designed primarily to increase boat-

ing safety. Standards have been imposed upon the manufacturers of boats of all types and this will contribute greatly to safe boating in the years ahead. Ample time has been allowed since passage of the Federal Act to allow the industry to gear its production to meet federal standards.

At the same time the individual states have been granted time to revise their individual boat registration and safety standards to meet the requirements of the Federal Act, which calls for mandatory registration, boating education, and enforcement of boating laws and regulations.

Some of the other states have already adopted new safe boating laws that track the federal regulations and comply with those mandatory regulations. It is imperative that Louisiana pass a new Motorboat Safety Act that meets the full requirements of the Federal Act. The alternative is that unless a new Act is adopted and implemented, registration, education and enforcement of Louisiana boats and boating laws will pass into the hands of the U.S. Coast Guard.

Since the beginning of boat registration and boating regulations, these have been administered by the Louisiana Wild Life and Fisheries Commission. I am confident that the boat owners and operators of the state wish to see the Commission continue to handle boat registration, expand safe boating education, and enforce all of the necessary regulations that must be adhered to under the Federal Act.

In doing so, the state will receive federal funds to assist in this administration of the new Safe Boating Act which has to be formulated to follow the Federal

Act and must be passed and implemented by August 1 of this year. Consequently, in the forthcoming session of the Louisiana Legislature a new Motorboat Safety Act will be introduced.

In addition to containing all of the necessary regulations that will satisfy those of the U.S. Coast Guard and the Federal Boat Safety Act of 1971, there are some changes that will make it more convenient for boat owners to register their craft with the Louisiana Wild Life and Fisheries Commission and renew their registration at regular intervals, when necessary under the law. This will make it easier for boat owners to be properly registered, and avoid embarrassment by being stopped for a registration check.

One of the provisions of the proposed Motorboat Safety Act is use of a renewal decal that will allow enforcement personnel to tell from a distance that the boat is currently and properly registered. This will avoid the necessity of stopping and checking boat operators.

Additionally, under provisions of the Federal Boat Safety Act of 1971, substantial funds will be made available to the state for expediting registration, safe boating education to provide years of security and safety afloat, and for enforcement of safe boating laws.

Public support from boaters is requested for immediate passage of the new state Act. I would like to stress again that Louisiana has only two choices. It can handle its own boat registration, or failing to adopt laws that are approved by the Coast Guard, it will find that registration and the accompanying implementation will pass into the hands of the U.S. Coast Guard.

LOUISIANA conservationist

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*I give my pledge as an American to
save and faithfully to defend
from waste the natural
resources of my country—its soil
and minerals, its forest, waters
and wildlife.*

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A Safe Boat Stays Afloat



And So Do It's Passengers

by Jeff Secrest

Photojournalist

United States Coast Guard

Photography by
Lloyd Poissenot

With nearly 300,000 small boats and pleasure craft operating on Louisiana waterways, it is in the best interest of all boat owners and operators to adopt good safety practices and stay abreast of the latest safety regulations affecting pleasure craft. In an effort to make your summer boating more enjoyable — and less hazardous—here is a safety refresher course supplied by the Boating Safety Branch of the U. S. Coast Guard in New Orleans. A few minutes spent here could save you many hours of misery later on.

FLOTATION DEVICES

Although it would seem to be only commonsense to have proper personal flotation devices on board any boat, it is nevertheless true that many recreation boat owners and operators fail to do so. Regulations governing personal flotation device (PFD) requirements for recreational boats have undergone a great revision. Effective 1 October 1973 it became mandatory for boats sixteen

(16) feet or over in length to be equipped with one Type I, II, or III (wearable) device for each person on board, in addition to one Type IV (throwable) device on board.

Boats less than 16 feet in length and all canoes and kayaks are required to have one Type I, II, III, or IV PFD on board for each person.

The four types of personal flotation devices are as follows:

TYPE I PFD is an approved device designed to turn an **unconscious** person in the water from a face downward position to a vertical or slightly backward position, and to have more than 20 pounds of buoyancy. Recommended for offshore cruising. Acceptable for all size boats. An example of a Type I PFD is a typical life preserver.

TYPE II PFD is an approved device designed to turn an **unconscious** person in the water from a face downward position to a vertical or slightly backward position and to have at least 15.5 pounds of buoyancy. Rec-

ommended for closer, inshore cruising. Acceptable for all size boats. An example of a Type II PFD is a typical buoyant vest.

TYPE III PFD is an approved device designed to keep a **conscious** person in a vertical or slightly backward position and to have at least 15.5 pounds of buoyancy. While having the same buoyancy as the Type II, the Type III has a lesser turning ability to allow for a comfortable design for water activities such as water skiing. Recommended for in-water sports, or on lakes, impoundments, and close inshore operation. Acceptable for all size boats. An example of a Type III PFD is a special purpose device (ski vest).

TYPE IV PFD is an approved device designed to be **thrown to a person in the water and not worn**. It is designed to have at least 16.5 pounds of buoyancy. Acceptable for boats less than 16 feet and canoes and kayaks and as a throwable device for boats 16 feet and over in length. Examples of

Type IV PFD's are the buoyant cushion or the ring buoy.

Approved life preservers are of the jacket or bib design. Constructed with pads of kapok, cork, fibrous glass, plastic, and/or balsa wood, they have a vinyl dipped or cloth covering of continuous construction whereby the flotation cells are not joined merely by straps, but are constructed as part of the jacket. Life preservers come in two sizes: adult size and child size. The adult size is designed for persons weighing more than 90 pounds, and the child size is designed for persons weighing less than 90 pounds.

Approved buoyant vests are the "horsecollar" design. They are constructed of pads of kapok, fibrous glass, or unicellular plastic foam and have a cloth or vinyl dipped covering which is fitted with necessary straps and ties. They are made in three sizes: adult size for persons weighing more than 90 pounds, child-medium for persons weighing between 50 and 90 pounds, and child-small for persons weighing less than 50 pounds. Buoyant vests may be of any color and are designed to turn an unconscious person face up in the water. The thing to remember is that, like life preservers, the child sizes are acceptable only for those persons in the applicable weight ranges.

Approved special purpose water safety buoyant devices come in various designs and construction and are marked to show the intended purpose of the device. A few examples include ski vests, yachtsmen's vests, and hunter's vests and jackets. Their lightweight construction allows greater freedom of movement than such bulkier devices as life preservers. As there are many similar devices which are not approved, be sure to check the manufacturer's label for the words "U. S. Coast Guard Approved" and an approval number.

Buoyant cushions serve the dual role of boat seat cushions and lifesaving devices. Since you sit on them,

they are handy in an emergency, and they are easy to throw to a person in distress. However, they do not provide good protection for children, nonswimmers, and injured persons because they must be held. When using them, grasp the straps or put your arms through the straps and hug the cushion to your chest. Never wear the cushion on your back like a pack since it will turn your face under water. Any cushion used should bear the Coast Guard approval. Also, since they receive rougher treatment than other lifesaving devices and, as a result, wear out faster, inspect them frequently for tears in the plastic envelope and for broken straps.

Many boaters include a ring life buoy as part of their lifesaving equipment. These devices are especially handy for tossing to persons in the water. They have grab ropes and a line so that the ring buoy can be hauled in after it has been thrown out. Make sure that your ring buoy is Coast Guard approved. All Coast Guard approved ring buoys are either white or orange. Attach approximately 60 feet of line to the grab line and mount the ring buoy on brackets where it will be readily accessible. When throwing it in the water, be careful not to hit the person with it.

It is important to make sure all lifesaving devices are Coast Guard approved and maintained in serviceable condition. It is also important to keep them readily accessible. One additional step to insure your own

well being is to try the personal flotation device on before going out. Make absolutely sure you know the proper method of wearing it.

FIRE EXTINGUISHERS

The number of approved fire extinguishers a motorboat is required to have aboard depends on the size and/or construction of the motorboat. Fire extinguishers are required on all motorboats which have compartments wherein explosive or flammable gases or vapors can be entrapped.

There are presently four types of fire extinguishers approved for marine use. They are: foam, carbon dioxide, dry chemical and freon. These types of extinguishers are divided into two classifications, either B-I or B-II; B-II being the larger of the two classes.

The requirements for fire extinguishers are as follows:

Size of motorboat	Requirement
Less than 16 ft*	1 B-I
16 ft. to under 26 ft.*	1 B-I
26 ft. to under 40 ft.	2 B-I or 1 B-II
40 ft. to 65 ft.	3 B-I or 1 B-II and 1 B-I

*None required for open outboard boats less than 26 ft. in length except where some closed compartment exists wherein explosive or flammable vapors or liquids might be trapped.



Make certain you have proper Coast Guard approved flotation devices before you go on the water.



Left, when using a buoyant cushion grasp the straps or put your arms through the straps and hug the cushion to your chest. Right, never wear the cushion on your back like a pack since it will turn your face under water.



When an approved fixed fire extinguishing system is installed in machinery spaces on boats less than 26 feet in length, no portable extinguisher is required. On boats 26 feet or greater a fixed fire extinguishing system replaces 1 B-I fire extinguisher.

Make sure any extinguisher you use is Coast Guard approved for marine use. If the extinguisher has been approved, the approval number will be on the extinguisher's nameplate.

Check frequently to be sure your extinguishers are in their proper stowage brackets and are undamaged. Replace cracked or broken hoses and keep the nozzles free of obstructions. Extinguishers which have pressure gauges should show a pressure reading within the designated limits. Also, check locking pins and sealing wires to insure that the extinguisher has not been used since the last time it was recharged. **Remember**, never try extinguishers merely to see if they are in proper operating condition, since sometimes the valves will not properly reset—resulting in a gradual discharge.

WARNING DEVICES

Outboards between 16 and 26 feet (Class I boats) must carry a hand-, mouth-, or power-operated horn or whistle audible for at least $\frac{1}{2}$ mile. This device can be used both for passing whistle signals and fog signals. Note that while such warning devices are not required on Class A boats, the "Rules of the Road" do require you to sound proper signals. So, even though your boat may be under 16 feet, it's a good idea to have a horn or a hand-, mouth- or power-whistle on board and ready for use. Class 2 and Class 3 boats (26 feet and over) require a hand- or power-operated horn or whistle audible for at least one mile as well as a bell which produces a

clear bell-like tone.

VENTILATION

Long standing federal regulations have required efficient ventilation of motorboats using volatile fuels (gasoline). Engine or fuel tank compartments are required to have at least two ventilator ducts fitted with cowls at their openings to the atmosphere. Intake ducts must be installed to extend from the cowls to at least midway to the bilge or at least below the level of the carburetor air intake. Exhaust ducts must be installed to extend from the lower portion of the bilge to the cowls in the open atmosphere.

The cowls attached to intake and exhaust ducts should be located and trimmed for maximum effectiveness, and so as to prevent fumes from being recirculated through the bilges.

BACKFIRE FLAME CONTROL

Gasoline engines other than outboard motors that have been installed since 25 April 1940 must have an efficient means of backfire flame control. The following methods of control are considered acceptable: A backfire flame arrestor that has been specifically approved by the Coast Guard and is attached to the engine air intake by a flame-tight connection; a gasoline engine, specifically approved by the Coast Guard, equipped with an engine air and fuel induction system that prevents backfire flames from emitting to the atmosphere; or an attachment to the engine air intake system which will disperse backfire flames to the atmosphere outside the vessel in such a manner as not to endanger the vessel, persons aboard or nearby vessels or structures.

The elements of the flame arrestor should be clean and free of grease and foreign matter. Damaged elements, cracked housing and fittings

aren't acceptable.

Note that the requirements for proper ventilation, and for backfire flame control are "Operator Requirements". Some boats may still be found for sale which are not so equipped. Until such time as these items may become manufacturers requirements, each boat owner should insure that his boat is properly outfitted.

LIGHTS

Even if you plan absolutely never to use your boat at night, it is wise to install the lights prescribed for your class of boat. Engine trouble, fuel problems, or unexpectedly fine fishing may keep you out longer than you intended. The requirements for lighting vary with the size and type of boat and the body of water you are operating on.

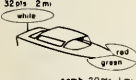
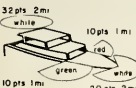
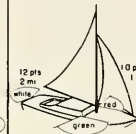
Two lights are required for motorboats up to 26 feet (where Inland, Western Rivers, and Great Lakes rules apply) when underway between sunset and sunrise. These include a combination 20-point red and green light on the bow and a 32-point white stern light visible all around the horizon (360°) for at least 2 miles. The term "points" is used to indicate the arc of the compass through which lights are visible—the 32-point light being visible from every point in the compass (a point equals $11\frac{1}{4}^\circ$, hence, 32 points equals 360°).

The following table gives the lighting requirements for both Inland and International waters:

It is important to recognize that the equipment which the law specifies must be on board a boat constitutes only the legal minimum—with other equipment generally being needed depending upon the type of boat, the area, and extent of operations.

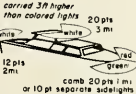
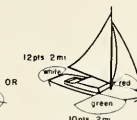
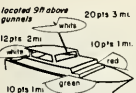
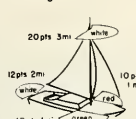
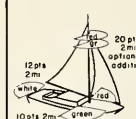
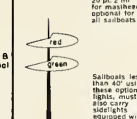
INLAND RULES —

used where Inland, Western Rivers and Great Lakes Rules apply

POWER ALONE	SAIL AND POWER	AUXILIARY: SAIL ALONE*	SAILBOATS
under 26' in length  comb 20 pts 1 m	 comb 20 pts 1 m	 comb 20 pts 1 m	 10 pts 2 m—green Sidelights 12 m on Western Rivers Rules
26' to 65' in length  10 pts 1 m 20 pts 2 m	 10 pts 1 m 20 pts 2 m	 10 pts 1 m	* Stern light not required for vessels under sail alone on Great Lakes Manually propelled vessels shall have a white light ready to be temporarily exhibited in time to prevent collision.

INTERNATIONAL RULES.—

required on high seas, may be used inland

POWER ALONE	SAIL AND POWER	AUXILIARY: SAIL ALONE*	SAILBOATS
less than 40' in length  12 pts 2 m comb 20 pts 1 m or 10 pt separate sidelights	 comb 20 pts 1 m or 10 pt separate sidelights	 comb 20 pts 1 m	 10 pts 2 m
power—40' but less than 65'—sailing vessels over 40'  12 pts 2 m 10 pts 1 m or 20 pt comb	 12 pts 2 m 10 pts 1 m or 20 pt comb	 12 pts 2 m 10 pts 1 m or 20 pt comb	 12 pts 2 m 10 pts 1 m or 20 pt comb

For instance, the law says nothing about carrying an extra propeller, but if your motor should become damaged from slamming into debris, disabling it, the situation would demand a spare. Other items which could prove useful include:

Anchor with enough line (at least 3/8-inch nylon or 1/2-inch manila for most outboards)

Compass First-Aid kit
Adequate fuel Flashlight
Well-equipped Distress flares
tool box Baller
Smoke signals

Also, don't forget an oar or paddle, even though it may present a stowage problem. An oar could turn out to be all you have for power and can be

used to swing the bow around should you go aground. Also, an extended oar handle can be used to help a person who has fallen overboard to get back to the boat safely.

WEATHER

The first step in planning a boating outing is to check the weather and weather forecasts. Some sources for weather data are as follows:

1. **Local Newspapers** — Read the whole report not just the summary. A good idea is to tear the report out of the paper and take it with you. Make sure it applies to the waters you're going to boat in.
2. **The Telephone** — The National Weather Service publishes

Coastal Warning Facilities Charts for all coastal areas. The location and phone numbers of all National Weather Service offices plus the location and times of AM and FM radio and television marine weather broadcasts are listed also.

3. **Special Radio Sources** — Coast Guard stations broadcast weather on 2670 khz. If you have a radio-telephone aboard, you can also call the marine operator for weather. The National Weather Service broadcasts continuous marine weather on the radio frequency 162.55 MHz (VHF/FM).
4. **Special Warnings and Storm Signals** — At many marinas, launching ramps, yacht clubs, and Coast Guard stations, storm warnings are displayed by flag hoists or lights.

FLOAT PLAN

Once you have checked the weather you need to file a **Float Plan**. This safety precaution is similar to that taken by airplane pilots when they file a flight plan. Tell a reliable relative, friend or neighbor, **WHERE** you're going, **WHOM** you will have with you and **WHEN** you're coming back. Be sure to stick to your float plan once you're out on the water.

In the event that you require assistance the information contained in a float plan will help such agencies as the Coast Guard in the implementation of search procedures. When you return from your boating trip be sure to cancel the float plan—that is, tell those concerned that you're back.

TRAILER

It is often said that safe boating begins in the driveway. Before trailering your boat it is important to make a thorough check around it to make sure all hitches are securely fastened, make sure that the trailer is securely hooked to the ball on the tow bar and that the safety chains are appropriately connected. Tires should be properly inflated to insure good handling and brake lights should be in good working order. Remember that the car will handle differently while trailering, so drive carefully. The trailer must be strong enough to carry the weight that will be placed on it. The load capacity of a boat trailer should not be exceeded. Most trailers have a data plate that states the maximum load capacity and the correct speci-



Excessive speed in proximity to other boats is not only dangerous, it is illegal.

cations for the tires. Remember, the "load" placed on a trailer includes the weight of the boat, the engine and all the gear that is loaded into the boat.

LOADING

Overloading is probably the greatest single cause of accidents in smaller boats and dinghies, and is a significant factor in accidents involving medium-size boats as well. So once you launch your boat here are a few things to remember concerning loading:

1. Distribute the load evenly.
2. Keep the load low.
3. Never stand up in a small boat.
4. Don't overload.

Remember also that the number of seats in a boat is not an indication of the number of persons it can carry safely. The safe load of a boat depends on many of its characteristics, such as; hull volume and dimensions, hull design, what it is made of, and location and type of seats in boat.

Based on standards developed by the Coast Guard, manufacturers of monohull recreational boats of less than 20 feet in length are required to display a capacity plate on all boats built after 1 November 1972 showing recommended weight capacity in pounds for persons, motor and gear. In addition, a maximum persons capacity in pounds must also be displayed. Exceptions to this regulation are sailboats, canoes and kayaks.

FUELING

Surprising though it may be, a half-pint of gasoline has the destructive power of five sticks of dynamite. Thus, when you fuel, you're dealing with many times this amount of explosive power since usually several gallons of gasoline are involved. Be sure to observe every precaution during operations:

1. Make sure that the boat is securely tied to the fueling pier and always fuel before darkness, if possible.
2. Stop engines, motors, fans, and other devices capable of producing a spark. Open the master switch if the boat's electrical system has one. Remember to extinguish all galley fires and open flames.
3. Close all port, windows, doors, and hatches so that fumes escaping during fueling cannot blow aboard and below.
4. Disembark all passengers and any crew members who are not needed for the fueling operation.
5. Don't permit anyone to smoke on board and in the vicinity of the boat while fueling.
6. Have a filled fire extinguisher close at hand for emergency use.
7. Measure the fuel in the tanks and do not order more than the tank will hold. Allow for ex-



In addition to the operator, ski boats must have an observer. Learn boating regulations thoroughly.



Overloading is probably the greatest single cause of accidents in smaller boats.

pansion to prevent overflows later.

8. Keep the nozzle or can spout in contact with the fill opening to guard against static sparks which might ignite the fuel.
9. Take care not to spill any fuel.
10. Never overfill. The practice of filling until fuel flows from the vents is highly dangerous.
11. For outboards, remove portable tanks from the boat and take them ashore to fill.
12. Close all fill openings.
13. Carefully wipe up any spilled fuel and dispose of the wipe-up rags on shore. Check for leakage.
14. Open all ports, windows, doors, and hatches, and turn on bilge power exhaust blower if your boat has one. Ventilate boat this way for at least 5 minutes.
15. Sniff low down in tank and engine compartments. If any odor of gasoline is present, do not start engine. Continue ventilation procedures until the fuel odor can no longer be detected. Remember, fuel vapors are heavier than air and tend to settle low into the boat's lower areas.

DISTRESS SIGNALS

If you have trouble while you are on the water there are many means of signaling that your boat is in distress. A recognized small boat distress signal is made by slowly and

repeatedly raising and lowering both arms outstretched at sides. Other signals are: continuous sounding of fog signal apparatus, flying boat's ensign upside down, or signal flares.

OPERATION

Reckless or negligent operation of your boat is not only dangerous, it is illegal. Remember to always be courteous and careful when you are on the water and be sure to keep a lookout for the other guy. Some examples of unsafe actions which may be determined to constitute negligent operation are:

1. Operating recklessly in swimming areas.
2. Overloading.
3. Operating while under the influence of alcohol or drugs and recognizable by erratic operation.
4. Excessive speed in proximity to other boats, or in dangerous waters.
5. Unsafe water skiing practice.
6. Operating in clearly dangerous areas.
7. Operating without proper lights at night.
8. Bow, seatback, gunwale, or transom riding.
9. Continued use or refusal to terminate use of a boat after being ordered to correct an especially hazardous condition by a Coast Guard Boarding Officer.

A civil penalty of up to \$500.00 may

be imposed by the Coast Guard for negligent operation, or the operator may be subjected to a fine up to \$1,000, or imprisonment of not more than 1 year, or both, for the criminal offense of GROSSLY NEGLIGENT OPERATION.

HAZARDOUS CONDITIONS

If a Coast Guard Boarding Officer observes a specifically defined unsafe condition and determines that an **ESPECIALLY HAZARDOUS CONDITION** exists, he may direct the operator to take immediate steps to correct the condition including returning to mooring. The specific unsafe conditions for which the boatman may presently be terminated are:

1. Insufficient lifesaving devices (PFD).
2. Insufficient firefighting devices.
3. Overloaded condition.
4. Improper navigation light display.
5. Fuel leakage.
6. Fuel in the bilges.
7. Improper ventilation.
8. Improper backfire flame control.

The Coast Guard Auxiliary, U. S. Power Squadrons, and American Red Cross offer excellent, free courses in boat operation and safety. Even if you are an experienced boatman you should enroll in one of these courses periodically to bring yourself up to date on the new regulations and safety techniques.

It is also a good idea to take advantage of the Courtesy Motorboat Examinations, a free service offered by the Coast Guard Auxiliary.

If you desire any additional information on courses, regulations, or any other aspect of safe boating please contact:

Boating Safety Branch
Eighth Coast Guard District
Customhouse
New Orleans, Louisiana 70130
Telephone: (504) 527-2972

or:

Hurley L. Campbell
Executive Assistant to the Director
Louisiana Wildlife and Fisheries
Commission
400 Royal Street
New Orleans, Louisiana 70130

November of 1973 presented a rare opportunity both for the Louisiana Wild Life and Fisheries Commission and for the citizens of Louisiana, for it was during that month that J. L. Wade and the Griggsville Wild Bird Society premiered their "Three Centuries Exposition" at Gallier Hall in New Orleans. The educational exhibit consisted of 2,000 great wildlife paintings and first edition reproductions valued at more than a million dollars and is the largest framed collection of early American wildlife art ever assembled.

The Louisiana Wild Life and Fisheries Commission had the honor of participating in this superb wildlife art exhibition as a sponsoring organization along with the Orleans Audubon Society, Louisiana Council for Music and Performing Arts, Inc., New Orleans Garden Society, Inc., Chamber of Commerce of the New Orleans Area, Louisiana Wildlife Federation, Sierra Club—New Orleans Chapter, New Orleans Art Association, Louisiana Ornithological Society, The Federated Council of New Orleans Garden Clubs, Inc., and the Louisiana Tourist Development Commission.

The Griggsville Wild Bird Society was born in the early 1960's, growing out of the now famous purple martin project in the small community of Griggsville, Illinois. The project was an experiment in which the citizens successfully used purple martins for natural insect control. During the sixty's

THREE CENTURIES OF GREAT AMERICAN WILDLIFE ART

the Society grew into a full-fledged conservation organization, with members throughout the United States and Canada, and a variety of wildlife conservation activities.

Under the able leadership of J. L. Wade, the organization has flourished and has become an effective force in the North America environmental awakening. They have expanded their activities into the wildlife art field, based on the feeling that this field offered undeveloped potential for stimulating public interest in wildlife conservation through the use of high quality wildlife art paintings. They are presently carrying on many activities in this area, among them a fine art publishing program designed to set some new standards for wildlife art in America and a fine educational art show. One of their current programs is the development of a nature education center that promises to overshadow anything previously done of that nature.

J. L. Wade, in the past decade, has shifted all of his energies and resources to the cause of wildlife conservation in America and has been instrumental in bringing such pioneering nature artists as Mark Catesby and Alexander Wilson into the light to receive long overdue recognition of the general public. Richard Sloan and Richard Timm, probably two of the most admired artists of this generation, are now actively working with Wade and the Society and have consequently provided the stimulus and direction for other programs with similar potential for great public benefit. Their efforts are casting a continuing and healthy light on the great wildlife paintings of the past, which are the beginnings from which America's wildlife art heritage grew.

Among the artists featured at the Exposition was Mark Catesby, an English biologist who came to the colonies as a collector of plant and animal specimens and who ranks as the greatest American bird artist of the 18th century. He did much of his work during the years 1722-1726 in the southeastern coastal regions and subsequently wrote and illustrated a two-volume work, "A Natural History of Carolina, Florida and the Bahama Islands," which became a classic reference work on the new world.

by Mary Marti



Drawn from Nature by J. Marti

1. Louisiana Tanager. 2. Florida Scrub-Wren. 3. Least Woodpecker.

Reproduced by K&L



Brown Pelican
Young of the Year

From a drawing by J. J. Audubon, F.R.S.E.

Life Preserved in 1847 by J. F. G. G. G. G.



Louisiana Heron
Male Adult

From a drawing by J. J. Audubon, F.R.S.E.

Life Preserved in 1847 by J. F. G. G. G. G.



Today, and much to the credit of Louisiana, Eric J. Bienvenu of Houma is reproducing by hand, in the same manner in which they were originally produced in the 18th century, the first colored drawings of North American birds—the birds of Mark Catesby.

The project will be complete when Bienvenu has colored every one of the 109 bird prints in Catesby's two-volume work, making meticulous notes on the exact materials, color mixtures and brushes he uses in each painting. When the set is completed, the Society expects to use the Bienvenu set of the Catesby birds in a unique educational exhibit which will, hopefully, stimulate public interest in and understanding of antique wildlife art. Eventually this program will be expanded to include the 18th and 19th century techniques of art production.

Bienvenu is a professional zoologist who has applied his experiences growing up among the artistic influences of the New Orleans area and the wilderness influences of the Louisiana coastal marshlands to the creation of American wildlife art, giving Louisiana something else of which to be proud.

Also represented among the 2,000 prints were the works of Alexander Wilson, who occupies a unique position in American history. Wilson is considered by many to be the greatest ornithologist in the history of America with his 9-volume, illustrated masterpiece "American Ornithology." His were the first colored pictures of American birds published in our country, and can be easily identified by the random grouping of birds on each plate. Significant to Louisiana's history is the journey he made down the Mississippi River to New Orleans to observe and paint new species and to attempt to sell his published works. It was on this trip that he discovered the Mississippi kite, which he painted on the river at Natchez.

A wildlife art exhibit is not complete in Louisiana without at least representative work of John James Audubon, but Wade and the Griggsville Society provided us with a remarkable collection to admire. Audubon was the most colorful of the three early ornithologists and the most successful as well, though this is due primarily to the fact that he had more ability as a "self-promoter". Audubon set out to paint every





species of wildlife in America and at the time of his death in 1851 had completed a total of 425 wildlife prints. Unlike most of his colleagues, past and present, Audubon's tributes include both bird and mammal prints, many of which he studied while he was living in Louisiana in the Feliciana parishes.

One of the most delightful aspects of the Griggsville Exposition was the privilege visitors had to meet and talk with Richard Sloan and Richard Timm, two of the most admired contemporary wildlife artists. Richard Sloan's works were represented in two forms—his series of great American bird paintings and the State Bird Program, in which the LWFC is a participant. Sloan's prints are recognized as unprecedented in their detail, authenticity and realism. He has been well known among wildlife art enthusiasts in the Great Lakes area for many years and is an ardent conservationist and an experienced zoo man, widely respected for his knowledge of animal behavior both in captivity and in the wild. Sloan's recent studies have concentrated on many bird species native to Louisiana and the time he has spent in our state has convinced him to establish permanent residence in Shreveport. It is quite an honor that the creator of what is called "the finest artistic achievement of the 20th century in the field of bird prints" has decided on Louisiana for his home, but as he puts it "there is just such a wealth of wildlife in this state."

Richard Timm is a native of the Detroit area and is a man of enormous skill in portraying fine detail and in creating vividly realistic scenes. His time spent in research is evident, both from books and from association with mammals in the vast forested areas of Michigan. Timm's excellent mammal paintings are stimulating appreciation in Americans for this type of fine art and for this type of wildlife on the North American continent.

The only criticism heard from anyone about this lovely Three Centuries of Wildlife Art Exhibition was that it could not remain here forever. It proved a real treat for art lovers as well as for lovers of wildlife, but for those of us who have a deep appreciation and love for both, it was an exceptionally rare experience.



Freshwater Fishes of Louisiana

Have you ever been fishing in a Louisiana river and caught what you thought was some unknown "river monster?" This frequently happens to anglers who are unfamiliar with fish other than bass, bream, and catfish. Dr. Neil H. Douglas, a professor of biology at Northeast Louisiana University, has written a book, *Freshwater Fishes of Louisiana*, sponsored by the Louisiana Wild Life and Fisheries Commission which we are sure will solve all your identification problems. Every known freshwater fish in Louisiana is illustrated and described in this work. Not only will it be of interest to fishermen wanting to identify their catch, but it will also be a valuable reference for the student of ichthyology.

Nine years ago fisheries crews of the Wild Life and Fisheries Commission, Dr. Douglas and his student launched extensive collecting efforts in all major river drainages in the state. The fishes were collected with drag seines, electrical apparatuses, and chemicals. The catches were sorted, identified and catalogued before housing them in the Museum of Zoology at N.L.U. For each fish, a distribution map was kept with every collection area marked. Detailed drawings of each fish were made by Gay Gannaway Ethridge, with emphasis placed on illustrating specific characteristics which could be helpful in identification. In addition to the black and white illustrations, the book includes 45 beautiful color photographs taken by Charles W. Biggar II.



Mrs. Janice S. Hughes, a fisheries biologist with Louisiana Wild Life and Fisheries Commission, assisted Dr. Douglas with editing and proofing the book.

The text of the book includes a brief history of ichthyology in Louisiana dating back to the first known studies of Louisiana fishes. A map depicting the various river drainages in Louisiana is included in the discussion of habitats and water conditions in the different systems. A complete glossary of technical terms used in the text, accompanied by 6 drawings showing specific structures and measurements, will help the untrained person understand the terms used in the identification of fishes.

Dr. Douglas has also carefully written keys to the identification of all 22 families and to all 148 species of fishes in the state. A discussion of the characteristics common to a family begins each section of the descriptions and the

text for each fish includes its distribution in North America with specific drainages in Louisiana, description of areas where the fish is found, characteristics used for identification, local names, and the approximate maximum size.

Also included is a section on salt water fishes which often invade the fresh waters of Louisiana but never establish breeding populations in totally fresh water habitats.

Forty-five color photographs round out the last pages of the book—the best part for the casual reader.

Freshwater Fishes of Louisiana is published by Claitor's Publishing Division in Baton Rouge and is now available at bookstores throughout the state. The price for this book is \$12.50.



This beautiful darter stays on the bottom of waters in Louisiana and is seldom seen by fishermen. In addition to this picture which appears in the front of the book, 45 color photographs of other fishes are included which show how brilliantly colored many of our fishes are.

BUNDICKS LAKE

[Beauregard Parish]

DUDLEY C. CARVER

Fisheries Biologist

Bundicks Lake is located in Southwest Louisiana near DeRidder. This lake was constructed by the Louisiana Department of Public Works by damming Bundicks Creek. The lake has a drainage area of 208 square miles and a surface area of 1,750 acres at 95 feet MSL. Shortly after reaching pool stage in 1961, the lake was stocked by Louisiana Wild Life and Fisheries Commission with largemouth bass, black crappie, bluegill, red-ear sunfish, and channel catfish.

Approximately 200 acres of timber near the dam was cleared prior to filling. At present approximately 65 percent of the lake is composed of dead standing timber. A large portion of dead trees has fallen and resulted in log mats in the lake, thereby making boat travel difficult in most of the flooded timber areas. A main boat road runs south to north with lateral boat roads intersecting east and west.

Bundicks Lake has an average depth of approximately five feet. Deep water areas exist along the old creek channels and near the dam. The shallow water of the lake aided in the rapid development of a dense stand of submerged aquatic vegetation shortly after impoundment. In 1965, water hyacinth appeared in the upper portion of the lake. This plant spread rapidly and infested approximately 1000 acres. Water hyacinths were sprayed by helicopter in the fall of 1968 to aid in control of this nuisance floating plant. An additional aerial spraying was also made in the fall of 1971. Maintenance spraying of the plant from a boat is conducted as the need arises. Water hyacinth continues to be a threat on Bundicks Lake, but at the present time good control has been achieved.

In July, 1964, a water fluctuation program was initiated for control of submerged aquatic vegetation and to improve fish population structure. The

lake was lowered five feet reducing the surface area to 700 acres. This management program was carried out through 1970 except for 1965. Good results were obtained during this program in controlling submerged aquatic vegetation and improving the fish population.

Bundicks Lake is governed by the Bundicks Creek Game and Fish Commission. Annual management recommendations are presented to this Commission by fisheries biologists of Louisiana Wild Life and Fisheries Commission. The Lake Commission makes their decisions from these recommendations as to what plans will be initiated on the lake.

Bundicks Lake provides good fishing opportunity year-round. The lake has become known as a "hot spot" for bream fishing. Bream fishing is best in the spring and summer when these fish are on the spawning beds. Live crickets are the most popular bait used for catching bream in this lake. The lake supports an excellent population of largemouth bass with several large bass being caught each year in the 9-pound category. Bass fishing is best in the early spring when the fish are spawning and again in the summer when they are schooling and feeding on shad. The most productive lures for catching bass year-round are spinner baits. Most of the large bass are taken using artificial worms. Crappie fishing is fair with the best areas for taking this fish being in the deeper water along the creek channels. The favorite crappie bait is live shiners.

Few areas on the lake are used for pleasure boating and water skiing because of the fallen timber. If you are seeking an outing on a Southwest Louisiana lake, Bundicks Lake can provide many pleasure-filled hours of fishing and related outdoor recreations.

BUNDICKS LAKE FACILITIES DATA

LANDING	Boat Launching	Launching Fee	Rental Boats	Boat Storage	Rental Motors	Fuel	Oil	Bait	Guide Service	Refreshments	Rest Rooms	Playgrounds	Ice	Drinking Water	Water	Electricity	Shelters	Tables	Grills	Firewood	Trash Cans	Camping Area	Trailer Space	Cabins
1. Spillway Public Camp Area											X			X	X			X	X		X	X	X	
2. Public Boat Launching	X													X										
3. Bailey's Landing	X		X			X	X	X		X	X		X	X	X	X		X			X	X	X	
4. Lakeview Recreation Center																								
5. Harpers Landing	X	X	X			X	X	X		X		X	X		X			X			X			
6. Clark's Landing	X	X	X		X			X		X	X		X	X	X	X		X			X	X	X	
7. Parish Public Camp Area										X				X	X						X	X	X	
8. Ern's Landing	X		X					X		X	X	X	X	X	X	X		X			X	X	X	
9. Gloss Landing			X		X											X					X	X		
10. Hesters Landing								X						X										
11. J & J Edgewater Retreat																								
12. Reid's Landing	X	X	X		X	X	X	X		X	X		X	X	X	X		X			X	X	X	X
13. Moses' Recreation Center	X	X	X		X			X		X	X		X	X	X	X	X	X	X		X	X	X	X

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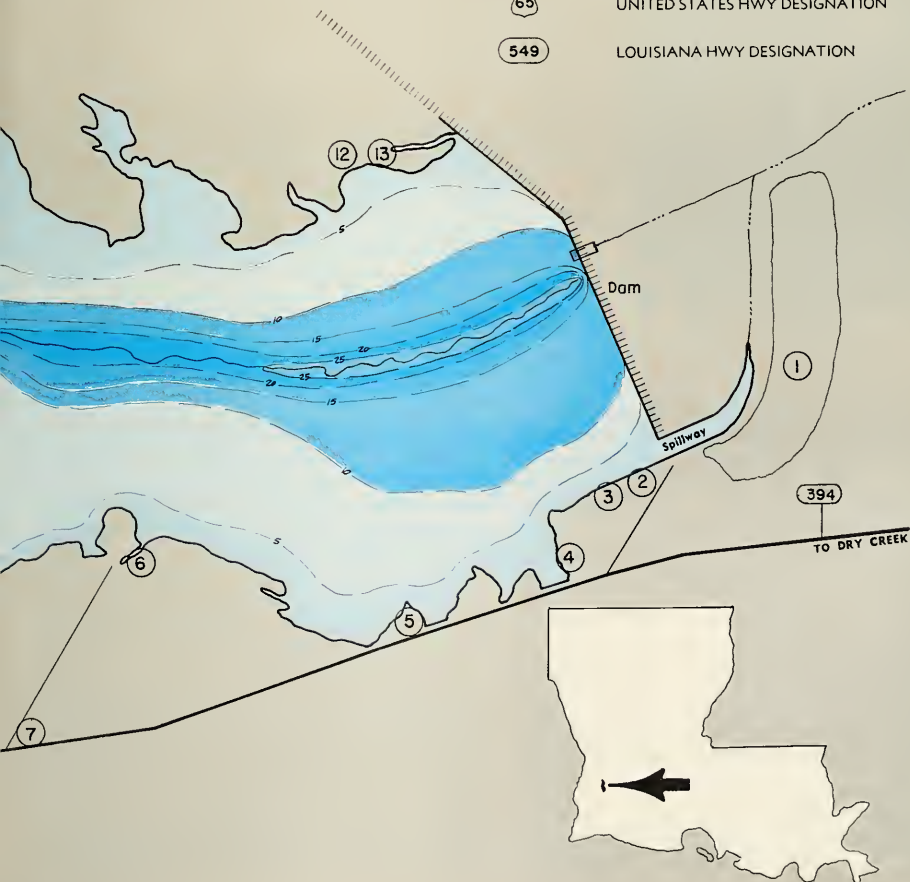
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LEGEND

UNDICKS

1.0
1 MILES
GE: 95.0'
TERVAL: 5.0'
1971

- UNIMPROVED ROADS
- LITE-DUTY ROADS
- HEAVY-DUTY ROADS
- 5 — CONTOUR INTERVALS
- ▤ LEVEE & ROAD
- ① FACILITY LOCATION & REFERENCE
- 65 UNITED STATES HWY DESIGNATION
- 549 LOUISIANA HWY DESIGNATION



HOMECOMING FOR

by
Janice S. Hughes and Bobby T. Walker
Fisheries Biologists

They're not preceeded by marching bands, they're not waving banners and they're not singing cheers, but striped bass are nevertheless causing "beaucoup" excitement here in Louisiana where some anglers are now catching 20-pounders in D'Arbonne Lake and Toledo Bend Reservoir.

As late as the 1950's striped bass were a popular sport fish in South Louisiana in the Gulf and inland rivers east of the Mississippi River. They would make their spawning run into freshwater every spring, providing many exciting hours of angling to Louisiana sportsmen. Then, the population of these fish began to slowly diminish and by the early 1960's there were very few being caught at all.

Several reasons were given for this relatively sudden decline in population of the striped bass species; those most accepted however, were related to pollution, primarily from turbidity (suspended soil particles in the water) and pesticides. Whatever the reason, though, the stripers were going fast and conservationists were determined that something had to be done if we were to continue to have this exceptionally fine

game fish around for posterity to enjoy as well.

During the same period of time, biologist were observing in South Carolina reservoirs that these saltwater fish were not only **living** in freshwater impoundments, but they were reproducing and actually helping balance the fish population by controlling gizzard shad. With these astounding results, biologists became interested in the fish for other freshwater lakes; and the South Carolina crew worked out a technique for catching adult stripers, taking and hatching the eggs and thus producing fish for stocking in either rearing ponds or public waters.

Since Louisiana had an identical problem with over-population of shad in most of its reservoirs, it was decided to try to return this fish to the state in freshwater lakes as well as saltwater areas. In 1965 the first striped bass were brought into Louisiana from South Carolina.

Certain criteria were established for the selection of the lakes to be stocked. These lakes had to have a large volume of good quality water supplied by tributary streams and water sheds. Stripers need large quantities of water to attract them

STRIPED BASS



Any fisherman would enjoy catching this limit of striped bass.

to spawning grounds in the headwaters and as was previously recognized, the water has to be free of turbidity or other pollutants, and, more important, flow rate has to be high when the water temperature is right. After all of these factors were taken into careful consideration, two lakes were selected to receive these first striped bass where natural reproduction was most likely to occur . . . D'Arbonne Lake in North Louisiana and Toledo Bend Reservoir, the boundary between Louisiana and Texas.

And so the project began. Since other fish were present in these waters, the 3-day old stripers were placed in hatchery ponds until they reached 2 to 4 inches in length, so they would have a much better chance for survival after they were stocked. The first stocking in 1965 consisted of 2,536 fingerlings in Toledo Bend Reservoir and 6,100 in D'Arbonne Lake. The number of fingerlings stocked in these lakes increased each year as better techniques for rearing these fish were discovered. There has now been a total stocking of over 750,000 stripers in Toledo Bend and over 360,000 in D'Arbonne.

Sampling for reproduction was started in both

lakes in 1970 when the females were 4 or 5 years old and capable of reproducing. Every year natural reproduction has been anticipated and thus far no evidence has been found indicating that it occurred. However, Fish Division biologists did come up with the next best thing to natural reproduction—they can now hatch eggs taken from mature adults in Louisiana which were previously stocked as fingerlings from 1965 through 1969. This, of course, eliminates the necessity of making an annual trip to South Carolina to pick up 3-day-old fish.

In March of last year, holding tanks and all necessary equipment for artificial spawning were set up on the banks of D'Arbonne Lake. Fisheries personnel were successful in capturing adult stripers in large mesh trammel nets, but had to quickly take them from the nets to the holding tanks so they would not die. When these adults were captured, they were not quite ready for spawning, therefore a hormone was injected into the muscles of the females to induce egg development. After the hormone had taken effect (usually about 24 hours), a sample of the eggs was taken and examined under a microscope. This technique re-



A medium size male was stripped to fertilize the eggs.

vealed the time when the eggs would be ready to be taken (stripped). When it was almost time to take the eggs, the female was examined again: Slight pressure was applied to the abdomen to determine if eggs would flow from the genital pore. When the eggs started running freely, final preparations for stripping were made. If the eggs were not taken immediately they would over-ripen and die. First the female was put to sleep by spraying a narcotizing solution on the gills. Only a few seconds were required before she was relaxed and would not fight when handled. The eggs were then removed by applying pressure to the abdomen, forcing thousands of small green eggs into a plastic tub. After all eggs were removed a male was then stripped and the eggs were fertilized.

The fertilization procedure required quick action and proper timing. Water was then placed in the container with the fertilized eggs. After about a minute this water was poured off and the eggs were measured by the use of a dipper to determine how many there were. Approximately 100,000 eggs were taken per pound of fish—therefore a 10 pound female produces approximately one million eggs.

Three females were stripped within one hour and an estimated 3,500,000 eggs were produced. The eggs were placed in plastic bags containing water and the bags were blown up with oxygen and sealed with a rubber band. They were then carried to the laboratory where the eggs were placed in hatching jars, where a small flow of water turned the eggs slowly while they were de-



Water was added to the eggs and milt to make fertilization possible.

veloping. When they were approximately 48 hours old, 1,500,000 fish started hatching. As they hatched, they swam up and out of the jar through an overflow spout into an aquarium. From the time netting for brood fish begins until the eggs are hatched they are given 24 hour a day attention.

The fish remained in these aquaria until they were 3 days old, and then were placed in rearing vats. At 5 days they started feeding on brine shrimp and 2 days later they were old enough to be placed in hatchery ponds. These ponds were stocked at a rate of 100,000-150,000 fish per surface acre and at the end of 2 months they were a minimum of 2 inches in length and were ready for stocking. An average of 20,000 fingerlings per acre were produced which, though it may seem somewhat low, was a relatively high figure in comparison to results from other states.

And what about growth and survival in the lakes after they were stocked? Fisheries surveys indicate an average annual growth of slightly over 2 pounds and a good rate of survival. Development of the reproductive organs was as expected, with the males eligible for spawning at 2-3 years of age and the females at approximately 5 years of age, but natural reproduction has not been determined yet.



When the striped bass were 6-12 days of age they were removed from these holding vats and stocked in hatchery ponds for additional growth.



These fingerlings are 2 months old and ready for stocking in Louisiana lakes.

But enough from the biologists' point of view! For the fishermen's benefit, striped bass will hit live bait, cut bait and many artificial lures—suggestions include solid yellow or white bucktail jigs, metal spoons with pork strip, white-yellow and white-red plastic worms, and light colored bombers. If you like drift fishing, spinners on plastic worm riggings are effective. The most successful method of fishing for stripers is probably trolling with a bugeye bucktail jig or metal spoon.

Keep in mind, though, the size and strength of these fish. Star drag reels or heavy spinning reels are often used and spinning gear should be equipped with 10 to 15 pound test monofilament. Trolling, however, requires 30 to 40 pound test line. Hook sizes suggested most often range from 4/0 to 6, 0.

The cooler months of the year—from late October to January—seem to provide the best fishing for stripers. Trolling above spillways and fishing in the tailrace below the spillways on both D'Ar-



Photography by
Janice Hughes

bonne Lake and Toledo Bend have been the more productive areas for sportsmen. Fishing in these areas can be dangerous, though, and safety precautions should be observed. And when you're fishing for stripers, keep in mind that the striped bass has been classified as a sport fish and a statewide limit of two fish per day has been established.

Additional studies are in the planning to determine the benefits received from stocking striped bass in freshwater lakes. Hopefully someday—if results are satisfactory—several other lakes can be stocked with the popular stripers so even more fishermen can enjoy catching them. Stripers are exciting biologists all over the Southeastern states because of the role they take in managing fish populations. But more important to the fishermen is the excitement the stripers' "homecoming" is causing when they are able to land one of these fighters . . . and then, of course, the tasty dish that always follows!

THE CRAWFISH INDUSTRY

Big Research Challenge

In Louisiana, the crawfish is more than a food item—it's a way of life.

Found almost everywhere there is "more than two drops of water," the pugnacious crustacean is used for food, bait, income, entertainment, weed controller, literary subject, and inspiration. It is a symbol of the Acadians themselves — hearty, adaptable, humorous, and courageous.

Despite its popularity in south Louisiana, and a developing groundswell of interest elsewhere, crawfish commerce has been termed a "non-industry" by persons close to the action. They base this characterization on the erratic cyclical and seasonal fluctuations in supplies from year to year, virtual lack of price stabilization, and localized nature of crawfish markets. Support for their argument can be found in the fact that production statistics for crawfish are not maintained by either the U. S. Department of Agriculture or the National Marine Fisheries Service.

Researchers in Louisiana's universities have been working since 1964 to strengthen this industry. Their efforts received a boost in 1972 when Secretary of State Wade O. Martin, Jr. sponsored initiatives for state funding of crawfish research at several state universities. Now the Sea Grant program is attempting to accelerate this research with additional funding, and to improve the coordination of on-going efforts.

The heart of the "wild" crawfish crop in the state is the 17-mile wide, 75-mile long Atchafalaya Basin. Unfortunately, the wild crop has always been erratic, producing bumper crops only about two years in five. South Louisiana produces 99

percent of the nation's yield and consumes 85 percent, yet demand has steadily outstripped supply in recent years.

Crawfish farming began about 20 years ago, probably by accident. A rice farmer found the land he had flooded over the winter to attract

wildfowl had produced a bumper crop of crawfish.

According to Don L. Gary of Nicholls State University, whose Ph.D. dissertation analyzed the Louisiana crawfish industry, the bulk of Louisiana's farms lie in "French Louisiana," situated on low back lands

of the levees on the east and west sides of the Atchafalaya Basin. Acreage has gone from 2,000 in 1959 to over 40,000 acres today. Some 34 processing plants operate during the harvest season, mostly concentrated in the Breaux Bridge area.

Crawfish impoundments are of three types — rice fields, flooded woodlands, and open ponds. Use of rice fields represents a multiple use concept management experts are trying to encourage. Some even see

crawfish ponds as an answer to the disappearing marsh. According to Guthrie Perry of Louisiana Wild Life and Fisheries Refuge Division, the coastal wetlands offer abundant possibilities for combined crawfish-wildfowl management. Studies at Rockefeller Refuge indicate the freshwater crawfish adapts satisfactorily to brackish water, so long as it does not exceed 10 parts per thousand. Such multiple use offers the marsh landowner an attractive opportunity for income and the greatest hope for marsh preservation, Guthrie maintains.

However, crawfish culture alone yields good returns—ranging last year from 200 to 800 pounds per acre, which sold "on the hoof" for up to 65 cents a pound.

Like any new venture, crawfish farming has had its problems. A major one is the invasion of a pond by fish. Dr. James Avault, LSU professor of Forestry and Wildlife Man-



Bob Denhie
A commercial fisherman runs his crawfish traps in the Atchafalaya River Basin, the heart of Louisiana's wild crawfish crop.

by
Ron Becker
and
Sally Kuzenski

SEA GRANT DEVELOPMENT

LOUISIANA STATE UNIVERSITY



Lloyd Poissenot

South Louisiana produces 99 percent of the nation's crawfish yield.

agement and a leading crawfish researcher, found antimycin and rotenone will kill trash fish without harm to the eggs or young of crawfish.

Other high-priority research needs identified by crawfish farmers were for knowledge on population dynamics—or factors causing the erratic fluctuations in available supply; induced molting—to support a lucrative “soft craw” bait market; and utilization of processing wastes—because of tightening EPA requirements.

Dr. Avault found in 1969 research that the red swamp crawfish, which accounts for 90 percent of the commercial catch, is very adaptable to environmental conditions. A burrower, it goes into the ground in May, when it mates, and remains until the young are hatched in late September or October. It exists in turbid water of low oxygen-high carbon dioxide content. He also found high water hardness the most significant positive growth-survival factor for the young. Cannibalism, too, poses somewhat of a threat, especially in crowded conditions. Once the young are hatched, they need to be flushed from their nursery to the ready food supply in the pond.

Disease and parasites are lesser threats. The American stock is ap-

parently highly resistant to disease. European stocks were wiped out years ago by a fungal infection. Thus far, restocking with American crawfish has been done successfully in Sweden, Denmark, France and Austria. The most common pathological problem in American stock is shell destruction from a bacterial agent, presently under study by Dr. Robert Amborski of Microbiology at LSU. Kenneth Lantz of Louisiana Wild Life and Fisheries is also studying diseases and parasites. Past studies by Dr. Avault indicate that parasitic-looking foreign bodies often seen on the shells of crawfish may be aquatic insect eggs or a leech-like oligochaete, neither of which harms the crawfish.

Professor Samuel P. Meyers of the LSU Department of Food Science initiated nutrition and ration studies of shellfish several years ago. On one ration he developed, crawfish grew from inch-long to eating size in two months. He also discovered crawfish have a definite need for chitin in their diets, which is an important component of their own exoskeleton. Using a meal made from the nutrititious crawfish waste, he developed a spaghetti-like ration that is receiving world-wide attention for its use in shrimp and lobster culture.

Research on utilization of crawfish and other shellfish wastes promises to benefit many industries. Dr. James Rutledge of the LSU Department of Food Science made crawfish meal more efficient by developing a decalcification process which almost doubled the protein content while reducing the undigestible calcium levels by 68 percent. With such improvements, shellfish meals made from processing wastes can be used to substitute for expensive fish meals and other proteins in commercial rations for poultry, trout, and catfish. Dr. Rutledge is also studying the storage life of crawfish, particularly as it is affected by rancidity of the fat.

Other scientists in the state are also interested in the fat—or “Cajun caviar”—which is the major flavor component of crawfish. Dr. Wayne Denton of the Department of Biochemistry at the University of Southwestern Louisiana at Lafayette is identifying the chemical components of the fat, while Dr. J. M. Sobek, a microbiologist with USL, is studying spoilage rates at various temperatures. Care in processing can control spoilage somewhat, he found.



Bob Dennie

A commercial fisherman sacks his catch for a trip to the processors.



Crawfish farm acreage has gone from 2000 in 1959 to more than 40,000 acres today.

Preservation by home freezing and its effects on nutrition is being studied by Dr. Nellie Derise of USL's School of Home Economics. She is also developing standard measures for seasoning popular crawfish dishes—to replace the traditional "dash of file" and "two shakes of red pepper"—so that neophyte crawfish cooks can prepare these spicy delights with confidence.

An elusive target of processors has been the virtually boundless market outside Louisiana. But who, besides a south Louisianian, would eat crawfish?

Marketing professor Thomas Griffin of USL has drawn a profile of a "typical" non-native crawfish eater, from interviews with newcomers to the cosmopolitan Lafayette community, a major hub of oil industry activities. His research determined the best prospective crawfish enthusiast would most likely be well-educated, middle income, and over 30 years of age.

Another big question: how to get the crawfish to out-of-state consumers? Dr. Holland Blades, another marketing specialist with USL, is studying the existing channels of commerce and the roles of various middle men along the route. The USL researchers agree that gourmet restaurants, especially high-quality chain operations, are the most promising retail outlets.

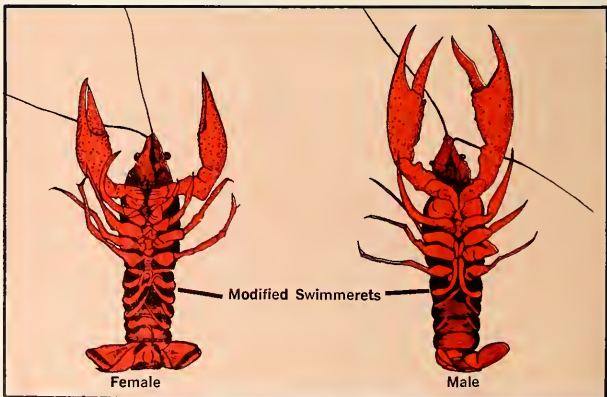
Nor are all of the delectables headed for man's tables. The most expensive crawfish market of all is the bait market, commanding over 10 times the price of man's edibles. "Soft craws"—crawfish that have just molted—offer a promising potential

to the state, according to Jay Huner, LSU doctoral candidate of marine sciences. Huner is studying the seasonal availability of both soft and hard shell crawfish from commercial ponds, as well as the most satisfactory harvesting and handling techniques.

Another researcher interested in harvesting is USL mechanical engineering professor Edward E. Anderson. Dr. Anderson is studying how the crawfish responds to underwater sounds, a project he hopes will one day aid in easier harvest techniques. His evidence indicates that different sized crawfish may respond to different sound frequencies.

Dr. Jerome V. Shireman, formerly of USL's Department of Biology, studied the feasibility of culturing the giant Australian Marron, which attains weights in excess of four pounds. He concluded the smaller native crawfish will have to suffice from a size standpoint, since the Marron could not adapt to Louisiana's water temperature extremes and other environmental factors.

The price of crawfish has always fluctuated wildly according to supply and demand. Several years ago the Louisiana Crawfish Farmers Association was organized in an effort to stabilize these prices. Dr. James Fowler of LSU's Cooperative Extension



MALE-FEMALE—The major visual differences in a male and female crawfish is in the first pair of appendages (swimmerets) on the abdomen. The male's, modified to transfer sperm, are hard and yellowish white, while the female's are soft and undeveloped.

Service has played an active part in marketing and price stabilization studies of the group, and presently serves as secretary-treasurer.

Last April LSU hosted the Second International Crayfish Symposium and Dr. Avault, U. S. delegate to the First Symposium in Austria last year, was chairman of this year's meeting. Researchers from all over the world reported on such subjects as crayfish ecology, diseases and parasites, food science, physiology, and cultivation and commercial utilization.

While the rest of the world may report these proceedings using the spelling convention c-r-a-y-f-i-s-h for the beast-of-honor, as proposed by Thomas Huxley in 1880, the Louisiana press will certainly stick with the earlier c-r-a-w-f-i-s-h.

Crawdad, grass crab, mini-lobster, whatever—the crayfish is a highly prized part of the Louisiana environment, and even as the international group met in Baton Rouge for learned discourse on its virtues, thousands of Louisiana people brandishing nets and poles prowled the countryside bayous and roadway ditches in a ritual to assure the small creature it is loved and wanted.



The use of rice fields for crayfish farming represents a multiple use approach management experts are trying to encourage.



Picking crayfish tails in one of the state's 34 processing plants.



Weighing the picked tails for packing and shipment. South Louisiana residents consume 85 percent of the nation's crayfish yield.

The Louisiana Sea Grant Program is funding, or intends to fund, the following research projects:

Production of soft crayfish for fish bait. Dr. James Avault, LSU.

Population dynamics of crayfish in commercial ponds as related to management. Dr. Avault.

Controlling wild fish in crayfish ponds. Dr. Avault.

Culturing gizzard shad for crayfish bait. Dr. Avault.

Improved techniques for harvest-ing crayfish. Dr. Avault.

Nutrition studies and ration development for crustaceans. Dr. Samuel Meyers, LSU.

Crayfish processing and waste utilization. Drs. Arthur F. Novak and James E. Rutledge, LSU.

Geographic systems analysis of Louisiana crayfish industry. Dr. Don L. Gary, Nicholls State University.

Crayfish marketing. Dr. James Carroll, University of Southwestern Louisiana.



SHRIMP STAINING

A Modern Management Tool

William S. Perret

Biologist, Oyster, Water Bottoms and Seafood

Stephen H. Clark

Biologist, N.M.F.S., Galveston

Gulf of Mexico shrimp catches have increased steadily in recent years and in 1972 Gulf shrimp had a dockside value of \$163 million, up sharply from values reported during the early 1960's. This figure represents 84 percent of the value of the total United States shrimp catch during that year. It is obvious that the major shrimp producing area lies in states bordering the Gulf.

The growing importance of the Gulf shrimp fishery has led to increased research and management by state and federal agencies. As part of the research effort, Louisiana Wild Life and Fisheries

Commission personnel collaborated recently with National Marine Fisheries Service Researchers in a mark-recapture study of white shrimp in Rockefeller Refuge, Cameron Parish, Louisiana. Participants included Commission personnel from the Division of Oysters, Water Bottoms and Seafoods, Refuge Division, and the Division of Water Pollution Control, and Department of Commerce biologists from the National Oceanic and Atmospheric Administration's Gulf Coastal Fisheries Center Galveston Laboratory of the National Marine Fisheries Service.



Photography by
Lloyd Poissenot

A 10-foot trawl was used to collect the shrimp for marking and for recapture.



A fine mesh net was set across the width of the canal to prevent shrimp from escaping.

This was one of a series of studies designed to estimate population size and rates of harvest, natural mortality, and migration of shrimp. Future plans include further testing the study methods in small estuarine and oceanic areas in which shrimp are fished commercially. Such experiments are expected to contribute to wiser management and utilization of shrimp resources.

Work began August 6 with assembly of a floating platform in a tidal marsh canal that had been blocked off with netting to prevent the shrimp from escaping during the study. Operating from



Marking the tail section of a white shrimp with a non-toxic fluorescent green pigment.



Upon recapture, the shrimp were examined under blacklight to determine marked from unmarked.



View of marked shrimp as biologists saw them in blacklight.

the platform and from small boats, personnel collected juvenile white shrimp and marked them with non-toxic red and green fluorescent pigments. There were 1,000 white shrimp marked with the red pigment and 1,500 white shrimp marked with the green pigment. On August 7, shrimp marked with the red pigment were released on the western end of the canal; those marked with the green pigment were released on the eastern end of the canal. During the next three days, a series of tows was made with a trawl to capture

shrimp in the canal. All shrimp caught were examined under blacklight to distinguish marked from unmarked shrimp. Of the shrimp taken in the trawl tows, 183 had been marked with the red pigment and 144 marked with the green pigment. From these catches, we estimated that the population of shrimp in the blocked off portion of the canal was approximately 42,000 or 6,400 per acre. Movement of shrimp within the canal was fairly heavy, with approximately 12,000 shrimp moving from west to east, and approximately 5,600 shrimp mov-



Red pigment is very visible even to the naked eye.

ing from east to west. Further analyses of the data are being conducted with computer to determine shrimp movements and natural and fishing mortality.

The Louisiana Wild Life and Fisheries Commission, as a member of the Gulf States Marine Fisheries Commission (an interstate compact formed in 1949), cooperates with the fishing industry, other state conservation agencies, and the National Marine Fisheries Service in fostering and promoting proper management and utilization of our fishery resources.



"WE GET LETTERS..."

ENDANGERED WILDLIFE

Dear Editor,

During the recently publicized National Wildlife Week whose theme was about endangered wildlife, I heard that the American Alligator was on the endangered species list. Being from southwest Louisiana, I find it hard to believe that they would consider Louisiana's populations of alligator in that "endangered" category. Is it true that our alligators are in danger of being extinct?

Bill Hardin
Lafayette, La.

Dear Mr. Hardin,

The answer to your question is an emphatic "no". Here in Louisiana we have in excess of 250,000 alligators and concentrated efforts are being made by the Commission to remove the alligator from the endangered or threatened species list in order that it may be managed and harvested properly. We have had two very successful, and carefully supervised, alligator seasons and it is estimated that the alligator population continued to increase, due to the research and good management practices in this area. Those alligators harvested represent only a fraction of one percent of the alligators in Louisiana and already have been replaced ten fold due to exceptionally high reproduction.

The Editors

AUDUBON SOCIETY

Dear Editor,

Hunters, fishermen, and birdwatchers must be kept informed of the many threats to our environment if these forms of recreation are to continue. Some state wildlife magazines still dwell largely on where-to-go or how-to-do-it articles, ignoring the fact that if our fishing streams are turned into ditches, our marshes into domestic crops, industrial or housing developments, there will be no place to hunt, fish, or study birds.

The Louisiana Conservationist does not fall into that category. The current issue, for January-February, 1974, is an outstanding example of the kind of material all sportsmen need. Every article is accurate and well written. As a former editor of a similar state magazine, the Missouri Conservationist, I appreciate and admire your good work.

Congratulations!

Sincerely,
Charles H. Callison
Executive Vice President
National Audubon Society

TEST TRAWL

Dear Editor,

Is it legal to throw a test trawl over for the purpose of catching bait when shrimp season is closed?

Alex Price
Sulphur, La.

Dear Mr. Price,

According to the present laws, use of a test trawl during closed season is prohibited. The only method by which shrimp may be taken in inside waters during the closed season is with "cast nets, dip nets with a diameter not to exceed three feet operated only by hand without any mechanical device or pulley whatsoever, bait traps, and seines less than one hundred feet long, said seines to be manually operated on foot and may not in whole or in part be operated by any mechanical means or device whatsoever." (R.S. 56:497).

The Editors

ENERGY CRISIS!

Dear Editor,

I have a trailered outboard motorboat which I use to fish in my favorite areas. I am fully aware of the gasoline shortage and "energy crisis" and that the speed limit on U. S. highways has been reduced as a measure to conserve fuel. Does the same principle apply to running my motorboat and should I cut my speed there too?

Richard Nunley
Slidell, La.

Dear Mr. Nunley,

The same is true of outboard motorboats as automobiles — the faster the speed, the more gas consumed. Too many fishermen are in a hurry to get to their favorite fishing spot and this causes their boats to consume more fuel. Treat your boat as you would your car and you'll find a tank of gasoline will allow you to cover more territory than if you travel at faster speeds.

The Editors

HERE A TURKEY—THERE A TURKEY!

Dear Editor,

Are restocking programs for wild turkey still going on in Louisiana, or has the practice been discontinued?

Newton Rayfield
Bush, Louisiana

Dear Mr. Rayfield,

Since 1962, the Louisiana Wild Life and Fisheries Commission has engaged in turkey restocking programs in many parishes of the state. Some sites of recent restocking include the following state wildlife management areas: Georgia-Pacific, Cities Service, Litcher-Moore, Red Dirt, Catahoula, Saline, and Fort Polk. Additionally, much lumber and paper company land has been used for purposes of raising and trapping Old Tom for further transplanting.

You can rest assured that the restocking programs have been successful, and they are scheduled to continue until carrying capacities of the best turkey ranges are reached.

The Editors

PIES POYPOURRI

By Marian "Pie" Pendley

In these days of hectic living each person has his own way of relaxing, and the Attorney General of Louisiana, William J. Guste, Jr., relaxes by shopping for cooking pots. His wife, Butsie, says she has long ago run out of storage space, but this does not deter Billy from buying more. "They come in all sizes," she added. "One is so large you have to stand on a chair and stir with a paddle."

This is really not too surprising to anyone who knows Billy Guste — and the Guste family tradition of fine cuisine.

"Our main hobby is cooking," Mrs. Guste said. "And with 10 children there have been times when the kitchen was crowded with everyone trying a new dish. Our successes (and there were failures as well) were named after the children." For example: Shrimp Melanie, and Oyster Coventuna a la Valerie or Ann's Cup Custard and Tuna fish Casserole a la Marie Louise.

The Gustes enjoy entertaining at home, particularly at Sunday brunch, and take pride in preparing the food themselves. Their lovely patio is a perfect setting for large groups as well as for intimate gatherings, and they usually serve their own version of grillades prepared with the special "Guste touch." It goes like this:

GRILLADES

- 4 pounds of beef or veal round (½ inch thick)
- 1 cup of bacon drippings
- ½ cup of flour
- 1 cup of chopped onions (preferably white onions)
- 2 cups of chopped green onions
- ¾ cup of chopped celery
- 1 cup of chopped green peppers
- 4 cloves of garlic finely minced
- 2 cups of chopped tomatoes
- 1 8 ounce can of tomato sauce
- ½ teaspoon of Tarragon vinegar (optional)
- 1 sprig of thyme (optional)
- 1 cup of water
- 1 cup of red wine (or you can use water)
- 3 teaspoons of salt
- ½ teaspoon of black pepper
- 2 bay leaves (optional)
- ½ teaspoon of Tabasco
- 2 teaspoons of Worcestershire sauce
- 3 tablespoons of chopped parsley

Remove the fat from the meat. Cut meat into serving size pieces and pound on wooden block to ¼ inch thick. In a Dutch oven, brown the meat well in 4 tablespoons of bacon drippings. As the meat browns, remove it from the Dutch oven to a warm plate.

Then add 4 teaspoons of bacon drippings to the Dutch oven and the half cup of flour. Stir and cook this until it turns a dark brown roux. Be careful once the roux starts to brown: It browns very rapidly and if you don't watch it, it will burn. The color that you are trying to get in the roux is a color a little lighter than milk chocolate.

As soon as the roux reaches this milk chocolate color, add the onions, the green onions, the celery, the peppers, the garlic, and sauté until they are limp. Then add the tomatoes, the Tarragon, the thyme and cook for 3 or 4 more minutes. Then add water and wine. And stir this well for several minutes. Return the meat to the Dutch oven adding salt, pepper, bay leaves, Tabasco and Worcestershire. Lower the heat and continue cooking. If veal rounds are used, simmer covered for approximately one hour. If beef rounds are used, simmer covered approximately two hours. Then remove the bay leaves. Stir in parsley and let this cool. Hopefully, you should let grillades sit several hours or overnight in the refrigerator before serving them, then more liquid can be added to give your sauce the consistency you desire. But, by all means, be sure that the grillades are very tender. Serve this over rice or the family version of Guste Grits prepared in this manner:

GUSTE GRITS

- 2 cups of grits
- 2 quarts of water
- 3 teaspoons of salt
- 6 ounces of American cheese grated (you can substitute Swiss, Romano or Cheddar Sharp or a combination of all of them—WOW!)
- 4 cloves of garlic, pressed through garlic press
- 1 stick of butter
- 3 eggs slightly mixed
- 2 cups of milk
- Grated Parmesan cheese (or a mixture of Parmesan, Romano or best of all Prolvone)

Cook the grits in the 2 quarts of boiling salted water until tender but still pourable. In other words, don't let it thicken like a rock. Remove from heat and add the cheese, pressed garlic and butter until melted. Then let it cool and when cool, add and mix in the eggs mixed with the cups of milk. Pour the entire mixture into a 2 quart casserole that has been well greased with butter or oleo or salad oil. Bake in an oven at 325° for 50 minutes. Remove from the oven and sprinkle the grated Parmesan or Romano cheese over the top and bake again for about 10 minutes more. It should then be served immediately. As you can see, this can be prepared ahead of time. In this event, it should be kept refrigerated and baked until piping hot before serving.

Butsie Guste readily admits "Billy can cook anything. He loves to go to famous restaurants, in New York for instance, and then come home and experiment in duplicating the recipe, and he's always successful."

When he has the opportunity to do so, the Attorney General enjoys hunting, and for his basic wild duck recipe he has perfected different sauces to suit every appetite. He begins this way:

DUCK—WILD—BASIC

After duck has been thoroughly cleaned, salt and pepper the inside and outside of each duck. Stuff the cavity with ¼ of an apple, a 3-inch piece of celery, ¼ of an onion and ¼ of a turnip. Wrap duck across the breast with a piece of bacon and place all ducks, breast up, on a rack in the baking pan and sprinkle lightly



with flour. Then add about ¾ of a cup of water. Bake in a pre-heated oven of about 350° with cover off for at least an hour. Baste frequently.

Basic Sauce

Now your ducks are ready, but you'll want a good sauce to go with this. So remove the ducks from the pan and pour off drippings from the pan and reserve them. Into ½ cup of butter, mix ½ cup of flour and blend this on low heat until it begins to slightly brown. Then add 1 cup of shallots or white onions and all of the drippings from the pan. Add salt and pepper to taste; 1 tablespoon of A-1 or Heinz 57 sauce; and 1 tablespoon of ketchup; 1 teaspoon of Lea & Perrin and ¼ teaspoon of red pepper.

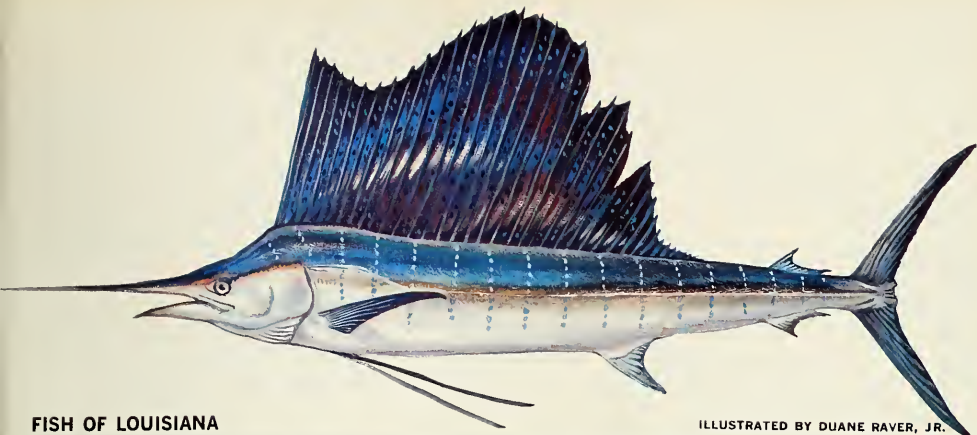
Duck D'orange

Prepare the ducks in the same manner in the basic duck recipe above with the exception of adding a small piece of orange inside the duck and several pieces of orange in the pan. Also add ½ cup of Louisiana orange wine. At the very end, mix in a quarter of a cup of Louisiana orange wine with the duck sauce.

Duck in Red Wine

Prepare in the same manner as the basic duck and the duck D'orange above except with red wine.

Though the Gustes appreciate and enjoy gourmet food, should you happen by the Guste home on EAW night you would be pleasantly surprised. This is what is laughingly referred to as "EAT AT WILL" night. You might find one child eating a salad, another having a steak, and a third child whipping up an omelet. Each family member has an opportunity to express his own preferences and individuality on this one night. But one thing is certain: culinary know-how is an important ingredient in the Guste household and it is always a time for Bon Appetit!



FISH OF LOUISIANA

ILLUSTRATED BY DUANE RAYER, JR.

ATLANTIC SAILFISH

The Atlantic Sailfish (*Istiophorus albigans*) is a marine species of little commercial value though highly prized by anglers because of its outstanding sporting characteristics. The most outstanding feature of the sailfish is the enormous dorsal fin, which is much higher than the greatest depth of the body. This height is maintained for almost the entire length of the fin. The longest ray is usually about the twentieth, counting from the anterior end, and the length of this ray is usually about 150 per cent or more of the greatest depth of the body. In addition, the pelvic fins of the sailfish are much longer than those of other istiophorids, reaching nearly to the anal fin. These fins also have a wide membrane attached to them, missing in other forms, which is quite noticeable in the freshly caught fish. If allowed to dry, however, the membrane sticks tightly to the fin rays and is not at all obvious.

The body of the sailfish is long, slender, and compressed, resulting in a slab-sided appearance. The lateral line is single and quite prominent. The vent is just in front of the anal fin. The spear is long and slender, often slightly curved, with the upper jaw generally a little more than twice as long as the lower. In color, the sailfish is dark steely-blue dorsally, fading to white or silvery on the ventral side. On the sides of the body, a number of pale vertical bars, often made up of rows of pale spots, may be present and may or may not persist after death. The vertical fins

are bright cobalt-blue in life, and the dorsal fin, especially in its posterior part, may be more or less liberally sprinkled with round or oval black spots. Sometimes the fish are a deep bronze color when brought into the boat, but this color does not persist after death.

The pectoral fins are moderately long, and the pelvics are the longest of any istiophorid and are provided with a broad membrane.

The list of the foods of the sailfish is a long one, but this is due mostly to the intensive investigation of this species. Squid and octopuses, especially the paper nautilus, form about 17 per cent of the total diet. The remaining 83 per cent consists primarily of mackerels and tunas, followed by jacks, halfbeaks (ballyhoo), and needlefish. Also included in significant numbers are herrings, cutlassfish, and porgies. Oddly enough, two fish that are commonly thought to be staple items with the sailfish, mullet and flying fish, apparently are eaten only rarely. The relative numbers and the known habits of the animals eaten by sailfish indicate that a good share of their feeding is done in midwater, along the edge of reefs, or close to the bottom. They are by no means exclusively surface feeders.

Most Atlantic sailfish are caught by angling. The favorite method is trolling, using a strip of tuna belly, or a whole mullet, or ballyhoo for bait. Sometimes sailfish may be caught incidental to tuna fishing operations, but the meat tends

to be tough, although tasty, and is of little commercial value except when smoked.

Whatever your method of landing a sailfish, the handling of it after it has been brought to the boat is not something that should be taken lightly. The bill of a sailfish is a weapon and can wound through intent or chance. On charter boats and most of the larger private fishing cruisers, the releasing of a sailfish is done by experienced crewmen. Wearing cotton gloves, he grasps the leader wire and carefully works the sail beside the boat. To release the sail alive, they cut the leader wire near its mouth. The hook in a sail's jaws disintegrates quickly in salt-water. Sailfish should never be gaffed—it is not wise to bring a sailfish aboard a boat with its dangerous bill swinging free.

The Atlantic sailfish probably averages a bit over seven feet and about forty pounds. One exceeding eight feet and weighing over sixty pounds is considered quite outstanding and a special trophy. The Louisiana record holder, John Lauricella, is in this category with his ninety-six pound catch of October, 1953 still topping the list. The world record for Atlantic sailfish, as provided by the International Game Fish Association, was a 123 pound beauty, 120 inches in length and 32¾ inches in girth, pulled out of the water by Herman Teetor in 1950. That means it's been over twenty years since either the state or world record was broken. Can anyone do anything about that?



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Barn Owl
(Tyto alba)

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